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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,288	09/16/2003	Masafumi Kubota	60188-652	9822

7590 11/05/2004

Jack Q. Lever, Jr.
McDERMOTT, WILL & EMERY
600 Thirteenth Street, N.W.
Washington, DC 20005-3096

EXAMINER	
DANG, PHUC T	

ART UNIT	PAPER NUMBER
2818	

DATE MAILED: 11/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/662,288	KUBOTA ET AL.	
	Examiner	Art Unit	
	PHUC T DANG	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Preliminary Amendment March 16, 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 March 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *031603*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Preliminary Amendment

1. Preliminary Amendment filed on March 16, 2004 has been entered.

Oath/Declaration

2. The oath/declaration filed on September 16, 2003 is acceptable.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The office acknowledges receipt of the following items from the applicant:

Information Disclosure Statement (IDS) filed on September 16, 2003.

Specification

5. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to

the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-2, 7 and 10-12 are rejected under 35 U.S.C. 102 (e) as being anticipated by Matsudo et al., hereafter "Matsudo" (U.S. Patent No. 6,747,748).

Regarding claims 1-2 and 7, Matsudo discloses a method of for fabricating a semiconductor device, comprising:

a first step of forming an gate insulating film (col. 3, lines 29-32) of high dielectric on a silicon substrate [col. 1, lines 31-34];

a second step of irradiating light onto the silicon substrate on which the gate insulating film is formed [col. 9, lines 65-col. 10, lines 10].

Regarding claims 10-11, Matsudo discloses the second step is conducted while the partial pressure of an oxygen gas or an oxygen compound gas such as a nitrogen or an inert gas is adjusted[col. 10, lines 56-60].

Regarding claim 12, Matsudo discloses in the second step, the substrate is heated to 100 to 500°C [col. 8, lines 40-58].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject

matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 3-4 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsudo in view of Paton (U.S. Patent No. 6,632,729).

Regarding claims 3-4, Matsudo discloses the features of the claimed invention as discussed above, but does not disclose between the first and second steps, the step of introducing dopants into the substrate and a conductor film on the insulating film.

Paton, however, discloses between the first and second steps, the step of introducing dopants into the substrate and a conductor film on the insulating film [col. 7, lines 26-63].

It would have been obvious to one having ordinary skilled in the art at the time the invention was made to apply the teaching of Paton to Matsude discussed above such that between the first and second steps, the step of introducing dopants into the substrate and a conductor film on the insulating film for a purpose of improving the uniformity heat treatment performed on the insulating film.

Regarding claims 8-9, Matsudo discloses the features of the claimed invention as discussed above, but does not disclose the insulating film contains a metal film which comprises at least one of hafnium, zirconium, lanthanum, cerium, praseodymium, neodymium, yttrium, and aluminum.

Paton, however, discloses the insulating film contains a metal film which comprises at least one of hafnium, zirconium, lanthanum, cerium, praseodymium, neodymium, yttrium, and aluminum [col. 1, lines 56+].

It would have been obvious to one having ordinary skilled in the art at the time the invention was made to apply the teaching of Paton to Matsude discussed above such that the insulating film contains a metal film which comprises at least one of hafnium, zirconium, lanthanum, cerium, praseodymium, neodymium, yttrium, and aluminum for a purpose of improving the uniformity heat treatment performed on the insulating film.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsudo in view of Inoue et al., hereafter "Inoue" (U.S. Patent No. 5,049,957).

Matsudo discloses the features of the claimed invention as discussed above, but does not disclose the insulating film is a capacitor insulating film.

Inoue, however, discloses the insulating film is a capacitor insulating film [col. 4, lines 3-7].

It would have been obvious to one having ordinary skilled in the art at the time the invention was made to apply the teaching of Inoue to Matsude discussed above such that the insulating film is a capacitor insulating film for a purpose of preventing leakage current.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsudo in view of Inoue and further in view of Saida et al., hereafter "Saida" (U.S. Patent No. 6,146,938).

Matsudo and Inoue disclose the features of the claimed invention as discussed above, but does not disclose a step of forming the step of selectively introducing dopants into the substrate prior to the first step.

Saida, however, discloses a step of forming the step of selectively introducing dopants into the substrate prior to the first step [col. 2, lines 19-27].

It would have been obvious to one having ordinary skilled in the art at the time the invention was made to apply the teaching of Saida to Inoue and Matsude discussed above such that a step of forming the step of selectively introducing dopants into the substrate prior to the first step for a purpose of preventing leakage current.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuc T. Dang whose telephone number is (571) 272-1776. The examiner can normally be reached on 8:00 am-5:00 pm.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and After Final communications.

12. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

PD

Phuc T. Dang

Primary Examiner

Art Unit 2818